

JSPJ1102B Loop Detector

Operational Manual

1. Introduction

Loop detector detects the changes in inductance capacity in the coils, to detect the presence or absence of vehicle, vehicle signals are converted to relay contact outputs by MCU, other devices are able to detect whether there is car passing, main application in the parking lot systems, road and bridge toll system, traffic monitoring systems.

2. Main technical parameters

- a) power supply voltage: AC220±15%V
- b) working environment temperature: -25~65℃
- c) rated power: $\leq 3W$
- d) sensitivity: 3 levels adjustable
- e) reaction time: $\leq 500MS$
- f) coil inductance: 100UH~400UH
- g) connection length: ≤ 5 meters
- h) relative humidity: $\leq 90\%$

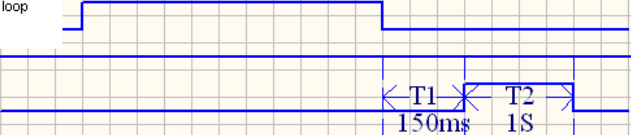
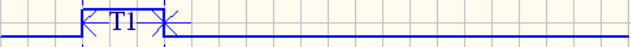
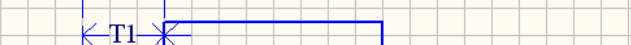
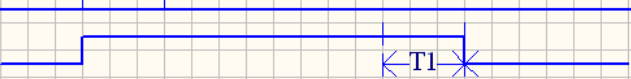
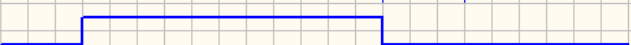
3. Operation

3.1 Installation

The processor should be installed near the loop, waterproof and dry environment, and keep a certain distance from other devices, ($\geq 20CM$), it is convenient for installation and maintenance. The working temperature can not be over 65℃. Detecting function, good or bad, is based on the loops connected. The parameters of loop include: coil material, coil shape, and correct burying.

3.2 Signal output mode setting

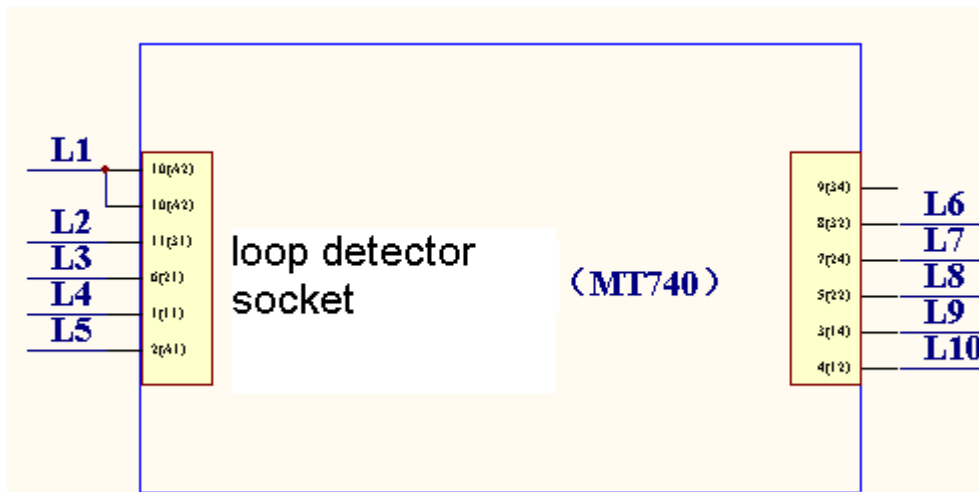
Signal output mode is controlled by coding switch (B2) on control board, detailed definition is as below, default is OFF state.

output	Type	DIP on-off setting	loop
Relay 1 output	A.type	DIP2=OFF DIP1=OFF	
	B.type	DIP2=OFF DIP1=ON	
	C.type	DIP2=ON DIP1=OFF	
	D.type	DIP2=ON DIP1=ON	
Relay 2 output	1.type	DIP3=OFF	
	2.type	DIP3=ON	Relay 1 and relay 2 output is the same, decided by DIP1, DIP2.

3.3 Connection sketch map

Connection Instruction

Line NO.	Socket ID	Instruction
L1	10	impulse output normal close port
L2	11	level output normal close port
L3	6	impulse output common port
L4	1	AC 220V L
L5	2	AC 220V N
L6	8	connect loop
L7	7	connect loop
L8	5	impulse output normal open port
L9	3	level output normal open port
L10	4	level output common port
L11	9	connect ground
Remark : 1、 Socket ID is the ID for each port on the socket. 2、 Must be connected to ground.		



Under default code (B2 all are OFF), relay d2's port 3 and 4, viz. L10 and L9 are level output mode (press loop output mode), relay d1's port 5 and 6, viz. L8 and L3 are impulse output mode(car passing by and arm dropping mode).

3.4 Anti-disturb of adjacent road

Two ways are selected for anti-disturb of adjacent road: (1): add loop circles (add one more on default circles), this mode is used where 2 loops are nearby. (2): 2 processors, select coding switch (B1) all ON of one processor, after setting this, must power up, diaplasis the processor, this mode is used where 2 loops have been fixed, disturb of adjacent road is possible. Ex factory setting is OFF.

Remark: do not set anti-disturb of adjacent road in every project, only when the loops are close (loop distance <80CM), select this setting.

3.5 State indication

1) green light is state indication:

Slow flash (1S): self detect state; fast flash (100MS): working state; constant bright: there is a car.

2) red light is fault indication:

Slow flash (1S): circle is too small; fast flash (100MS): circle is too big; constant bright: loop is not connected or loop is short circuit.

3.6 Sensitivity setting

1) Sensitivity of processor is settled by 3 levels switch on top board:

high (H)、middle (M)、low (L) three levels.

2) default is M, L、M are used for detecting cars, H is used for detecting motorcycle, bicycle and debugging.

3.7 Debugging method

1) power up, green light flash slow (1S) means it is self detecting, about 3S (more time needed if there is object moving at the side), after self detecting, green light flash fast (100MS) means self detection is successful; red light is constant bright, means loop is not connected or loop is short circuit; red light flash slow (1S) means circle is too small; red light flash fast (100MS), means circle is too big;

2) car detection debugging:

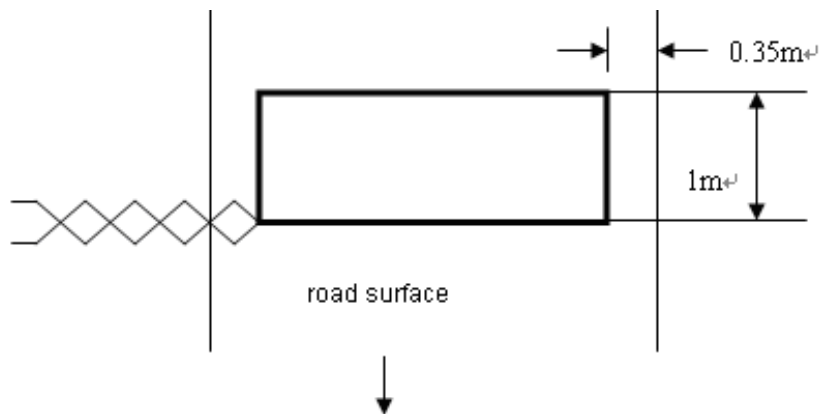
When car enters detecting area, working indicator light (green light) stops flashing, constant

bright, export signal of presence of car; When car leaves detecting area, working indicator light (green light) flashes, export signal.

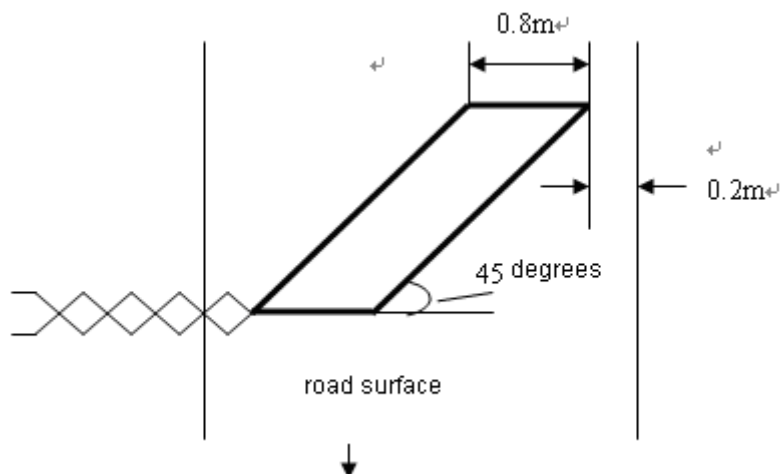
4. Loop installation instruction

4.1 Geometry shape for loops

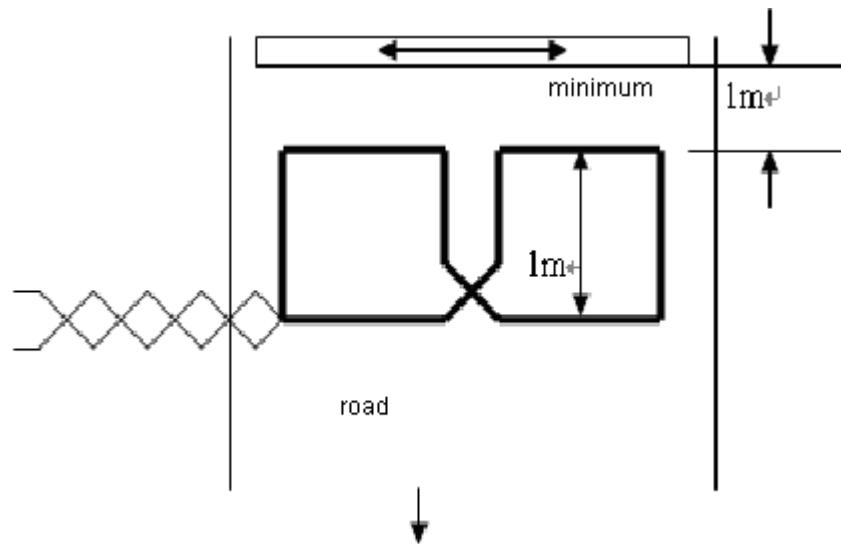
a. rectangle (default), it is better for detection cars and truck.



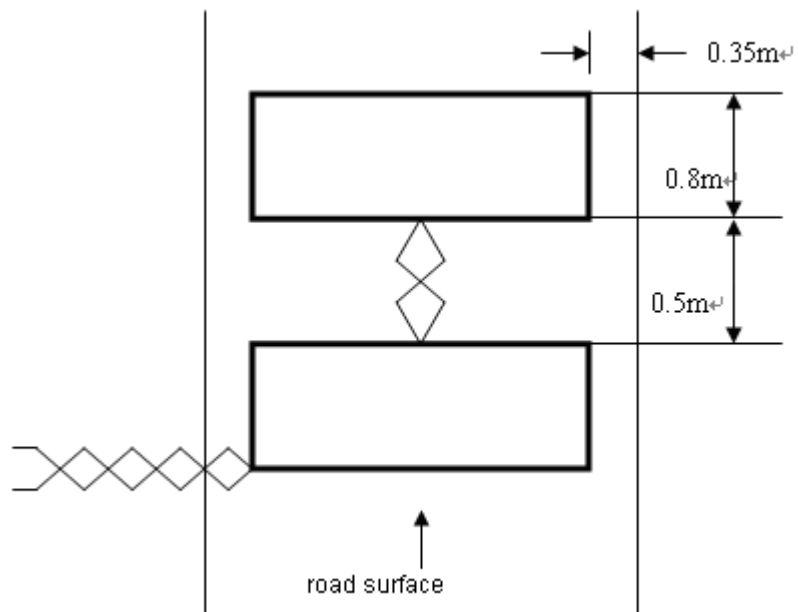
b. 45 degrees angle, it is better for detecting motorcycle.



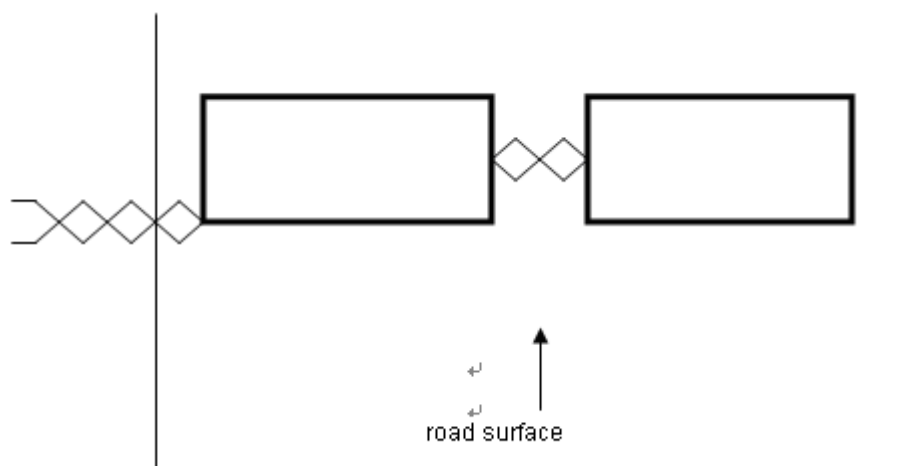
c. this shape is used for sliding gate installed nearby.



d. this shape is used for detecting big scope (a is for lengthways big scope , b is for transverse big scope).



a



b

4.2 Loop circles

If the loop is small, add more circles(BV-2.5).

Take BV-2.5for example, the relation of loop perimeters, circles and inductance capacity is as below:

Loop perimeter	shape	circles	inductance capacity
3.4m (1.2X0.5)	rectangle	8 circles	2.10 UH
4.6m (1.5X0.8)	rectangle	6 circles	158UH
6m (2X1)	rectangle	5 circles	126 UH

For anomalous shape loops, such as lozenge or “8”, add one more circle, make sure inductance capacity is 100UH~400UH.

4.3 Loop installation

The loop must be rightly enswathed tightly with spiral tube before being buried to prevent from being out of shape. Then cut a groove of 10mm wide, 50mm deep in ground, and bury loop as deep as possible. Polish corners of groove to prevent loop from being cut. Extension line of loop could be buried in the similar groove.

Before backfilling groove, must test coil inductance (must be between 100 – 400uH), then put a nylon cord on loop, and backfill groove with concrete or resin, so that insulating resistance between loop and ground is higher than 20MΩ (Over 100 MΩ is better).